

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

1                   1.       (Currently amended): A storage system comprising:  
2                   ~~a first computer system having a first storage component comprising a first disk~~  
3 ~~system, the first disk system comprising a first disk control unit and one or more first disk units;~~  
4 and  
5                   ~~a second computer system having a second storage component comprising a~~  
6 ~~plurality of second disk systems, each second disk system comprising a second disk control units~~  
7 ~~and one or more second disk units,~~  
8                   the first and second storage components configured to exchange data over a data  
9 network,  
10                  the first ~~computer-disk~~ system having a memory that is configured with program  
11 ~~code to write a block of data to the first storage component configured to receive a block of data~~  
12 ~~from a host computer and to transmit a data packet to one of the second computer-disk systems,~~  
13 the data packet including the block of data, a time stamp, and a sequence number,  
14                  ~~each of the second computer-disk systems configured having a memory that is~~  
15 ~~configured with program code to receive data packets from the first computer-disk system, to~~  
16 ~~receive a limit time value from a predetermined one of the second disk systems based on time~~  
17 ~~stamps and sequence numbers contained in the data packets, to select a candidate data packet~~  
18 ~~from among its received data packets by comparing their associated time stamps to the limit time~~  
19 ~~value based on time stamps and sequence numbers contained in the data packets, and to write the~~  
20 candidate data packet on ~~the one of its second disk units~~ storage system,  
21                  wherein blocks of data written on the first storage component are written on the  
22 second storage component in the same order as on the first storage component.

1                   2.       (Currently amended): The system of claim 1 wherein each of the second  
2 disk systems produces a candidate limit time, wherein the limit time value is the earliest time  
3 among the candidate limit times~~the second memory is further configured with program code to~~  
4 ~~obtain a limit time stamp from among the time stamps based on their corresponding sequence~~  
5 ~~numbers and to select the candidate data packet from among the data packets by comparing their~~  
6 ~~corresponding time stamps against the limit time stamp.~~

1                   3.       (Original): The system of claim 1 wherein the data network is a  
2 connectionless network.

1                   4.       (Original): The system of claim 1 wherein the data network is  
2 characterized as being unable to guarantee that data packets will be received in the same order as  
3 they were sent.

1                   5.       (Original): The system of claim 4 wherein the data network is a wide area  
2 network.

6 - 7. (Canceled)

1                   8.       (Currently amended): The system of claim 7-1 wherein ~~each of the first~~  
2 ~~disk systems comprises plural first disk units and each of the second disk systems comprises~~  
3 ~~plural second disk units, each of the first disk units being~~is associated with one of the second  
4 disk units.

1                   9.       (~~Original~~Currently amended): The system of claim 8 wherein each first  
2 disk unit is associated with one of the second disk units independently of the ~~first~~second disk  
3 system to which the ~~first~~second disk unit belongs.

1           10.   (Currently amended): A method of ~~backing up data contained in operating~~  
2 a storage system that includes a local disk system to and a remote disk system, comprising:  
3           ~~writing~~ receiving a block of data to be written to a first local disk unit among a  
4 plurality of local disk units in a local data store in the local disk system;  
5           sending a data packet to a first remote disk unit among a plurality of remote disk  
6 units in a first remote data store from among a plurality of remote data stores in the remote disk  
7 system, the data packet including the block of data, a time stamp, and a sequence number,  
8 wherein the first local disk unit and the first remote disk unit defines a remote copy pair;  
9           ~~receiving data packets from the local system; and~~  
10          in the first remote data store, performing steps of:  
11               receiving from a predetermined remote data store a limit time, the limit  
12               time being determined based on the sequence numbers and the time stamps of its data  
13               packets; and  
14               selecting a data packet whose block of data is to be written on a remote  
15               data store by comparing the time stamp of each of its data packets against the limit time,  
16               ~~based on the sequence numbers and the time stamps of the data packets.~~

1           11.   (Original): The method of claim 10 further including incrementing the  
2 sequence number for a next data packet.

12 - 13.       (Canceled)

1           14.   (Currently amended): The method of claim ~~13~~ 10 further including  
2 writing plural blocks of data to the local disk units and sending plural data packets to the remote  
3 disk units so that each remote disk unit has a list of sequence numbers from its associated plural  
4 data packets, the method further including, for each list of sequence numbers, obtaining a longest  
5 run of sequence numbers, obtaining the highest-valued sequence number from the longest run,  
6 and obtaining the time stamp corresponding to the highest-valued sequence number, thereby

7 producing a list of time stamps, the method further including selecting a data packet based on the  
8 earliest time stamp in the list of time stamps.

15 - 16. (Canceled)

1 ~~18~~17. (Renumbered, Currently amended): The method of claim ~~16~~10 wherein  
2 each of the local disk units is associated with one of the remote disk units independently of the  
3 local disk system to which the local disk unit belongs.

1 ~~19~~18. (Renumbered, Currently amended): The method of claim 10 wherein  
2 ~~writing-receiving~~ a block of data ~~to eat the local disk system~~data store and sending a data packet  
3 to the remote disk system are performed asynchronously.

1 ~~20~~19. (Renumbered): The method of claim 10 wherein the data packets are sent  
2 over a connectionless data network.

1 ~~21~~20. (Renumbered): The method of claim 10 wherein the data packets are sent  
2 over a data network that is characterized as being unable to guarantee that data packets will  
3 arrive at a destination in the same order as they were sent.

1 ~~22~~21. (Renumbered, Currently amended): The method of claim ~~21~~20 wherein  
2 the data network is a wide area network.

1 ~~23~~22. (Renumbered, Currently amended): In a local storage system comprising  
2 ~~plural a~~ local data stores, a method for backing up data in the local storage system to a remote  
3 storage system comprising plural remote data stores, the method comprising:

4 ~~each at the~~ local data store, receiving a data block to be written thereto;

5 ~~each at the~~ local data store transmitting a data packet comprising the data block, a  
6 time stamp, and a sequence number to one of the remote data stores;  
7 at the remote data stores, receiving plural data packets from the local data stores,  
8 wherein each remote data store has its associated plural data packets and a list of sequence  
9 numbers and a list of time stamps from the associated data packets;

10                   at each remote data store, identifying a longest run of sequence numbers and  
11 ~~obtaining the an~~ obtained data packet ~~of having~~ the highest-valued sequence number of the  
12 longest run of sequence numbers;  
13                   ~~at each remote data store, obtaining the earliest time stamp from the obtained data~~  
14 ~~packet~~;  
15                   ~~selecting the earliest of the obtained time stamps as a limit time~~;  
16                   at a predetermined remote data store, identifying a limit time from among time  
17 stamps associated with obtained data packets from the remote data stores;  
18                   at each remote data store, selecting a candidate data packet having the earliest  
19 time stamp; and  
20                   ~~selecting the~~ identifying a selected data packet from among the candidate data  
21 packets whose time stamp is earlier than the limit time and writing the selected data packet to  
22 one of the remote data stores.

2423. (Renumbered, Canceled)

1                   2524. (Renumbered, Currently amended): The method of claim 2422 wherein  
2 ~~each the~~ local data store is ~~one of the a~~ plurality of local disk drives and each remote data store is  
3 ~~one of the a~~ plurality of remote disk drives, each local disk drive being associated with one of the  
4 remote disk drives to define a remote copy pair, wherein there is a sequence number associated  
5 with each remote copy pair.

1                   2625. (Renumbered, Currently amended): The method of claim 2524 wherein  
2 the received plural data packets are grouped according to remote copy pair.

2726. (Renumbered, Canceled)

1                   2827. (Renumbered, Currently amended): The method of claim 2725 wherein  
2 each of the plural data packets is grouped based on the local disk ~~system~~ drive from which it was  
3 sent.

- 1                    2928. (Renumbered, Currently amended): The method of claim 24 wherein each  
2 remote copy pair is associated with one of a plurality of data integrity pair groups, wherein a  
3 sequence number is associated with each pair of local and remote disk ~~systems~~ drives which  
4 have a common data integrity pair group.

3029 - 32. (Renumbered, Canceled)